JTFp Protofederation Update

AMG-9

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JSIMS JPO

List of Federates
- JTFp Protofederation -

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Federate Status
- JTFp Protofederation -

- **NASM/AP (Air/space)**

  - **Features to be modified:** None. Built from scratch.

  - **Activities required:** Write an "RTI Ambassador" to interface the RTI.

  - **Adaptation status:** Design of RTI Ambassador is underway. Some IDL and C + written. Orbix for the Sun platform was recently received.

  - **Adaptation schedule:**
    - Late Feb 1996: Create, join, resign from, destroy, submit a query to, submit an ID request to a federation .
    - Mid-April 1996: publish and subscribe to object classes, object attributes, and interaction classes, instantiate and delete objects, update object attributes.
    - July 1996: request attribute ownership acquisition, query attribute ownership, request delete capability, set and request federation time, set federation rate, submit time advance requests.

  - **Adaptation cost estimate:**

Federate Status
JTFp Protofederation

- **Eagle (Land)**

    – **Features to be modified:** Eagle's ability to pass messages to and from the RTI ambassador.

    – **Activities required:** Build an RTI ambassador (in C++); modify Eagle to communicate with this RTI ambassador.

    – **Adaptation status:**; Significant progress on modifying Eagle model. Not much progress on building the RTI ambassador.

    – **Adaptation schedule:** Both tasks complete by early April 1996

    – **Adaptation cost estimate:**

Federate Status (cont'd)
- JTFp Protofederation -

- **NSS (Sea)**

    – **Features to be modified:** Add federation-level conservative "lookahead" algorithm and generation/response to external data/events.

    – **Activities required:** Develop RTI ambassador interface to RTI, develop RTI initialization file, implement lookahead algorithm, generation/response to data/ events, integration testing.

    – **Adaptation status:** RTI Ambassador interface design/implementation starting now.

    – **Adaptation schedule:**
        – April 1996: RTI Ambassador (after RTI V0.3)
        – May 1996: Generation/response to data/events.

    – **Adaptation cost estimate:**

Federate Status (cont'd)
- JTFp Protofederation -

- **DEEM (Environmental)**

  - **Features to be modified: :** Addition of dynamic environmental feedback, line-of-sight assessment capability, atmospheric conditions assessment capability, sea-state conditions.

  - **Activities required:** Write "RTI Ambassador" to interface RTI

  - **Adaptation status:** Technical design of additions well underway. Analyzing requirements for design of RTI Ambassador.

  - **Adaptation schedule:** Should be complete by early April 1996.

  - **Adaptation cost estimate:**

Federate Status (cont'd)
- JTFp Protofederation -

- **JTF HQ**

    - **Features to be modified:** None. Model being built from scratch

    - **Activities required:**
        Code interfaces to support federates for:
            Command and control functions
            Man-in-the loop functionality

    - **Adaptation status:**
        Preliminary design documented
        Detailed design is in progress

    - **Adaptation schedule:** Should be complete by late March 1996.

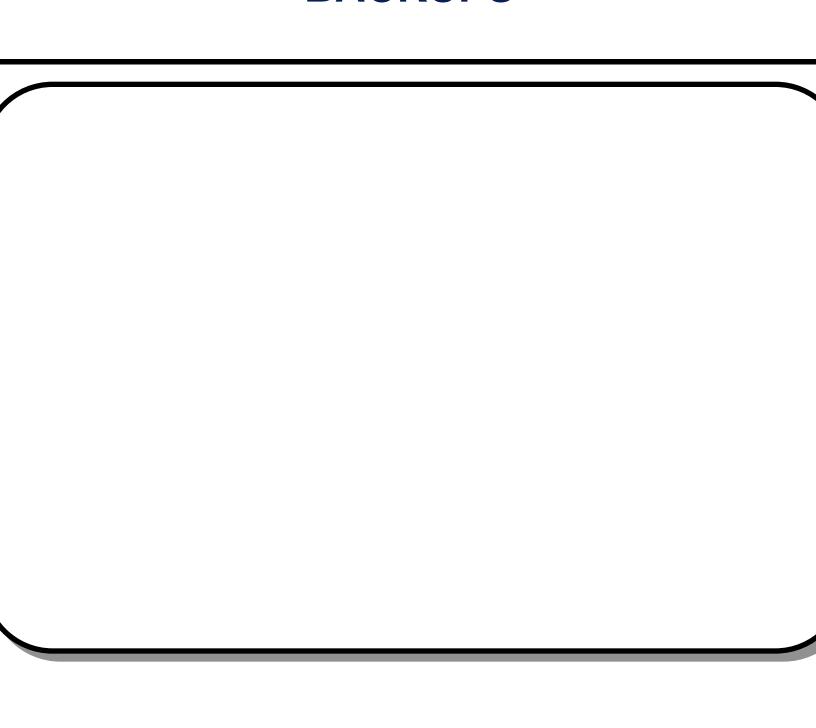   - **Adaptation cost estimate:**

RTI

- More detailed training and / or documentation for the RTI is necessary. Recommend extended workshop geared toward developing an interface to the RTI.

- Discrepancies between the I/F Spec, the RTI API, and the RTI implementation must be given visibility.

- RTI discovery predicates should be augmented with user-definable filter functions (Data Interest Management).

Lessons Learned - HLA Compliance
- JTFp Protofederation -

Time Management

- Objects designed using one-way(asynchronous) Orbix calls are more efficient.

- Time management between simulations must be established in a manner to ensure causality.

- Two classes of events require synchronization: Inter/Intra-simulation.

  - only inter-simulation events which impact other federates need to be synchronized.

- Deadlock can be alleviated by using simulation synchronization and one-way ORBIX calls.

- Synchronization of federates is not possible through the RTI until V0.3.

BACKUPS

Lessons Learned to Date - Other
- JTFp Protofederation -

- Scenarios provided a useful context for FOM development.
- FOM development is facilitated by an understanding of the attendant SOMs.
- Details of the FOM should be <u>clearly</u> understood.
- FOM and SOM taxonomies should be distinct (as opposed to the FOM being an amalgam of all SOMs).
- A method is needed for capturing logical interactions in a FOM.
- The emphasis on the relationship between the SOMs and the FOM is dependent on the organizational makeup of the federation.
- Participants with detailed technical knowledge of the internal methods of the federates are needed to facilitate coherent FOM development.
- All facets of software dependency should be well understood.
- The use of reflectors for communication has been useful. FTP sites and the DMSO home page have greatly facilitated document transfers.